Section 929

DETERMINATION OF ROUNDED PARTICLES ON COARSE AGGREGATE

929.01 Scope

This method of test covers a procedure for determining the percentage, by weight, of rounded aggregate particles. The purpose of this method of test is to eliminate aggregate that will not provide good skid resistance and interlocking capabilities.

929.02 Apparatus

1. Balance - A balance with a capacity of 1000 g and sensitive to 1.0 g.

2. Sieves - Woven wire cloth sieves with square openings conforming to the requirements of AASHTO Designation M-92.

3. Sieve Shaker - Any mechanical sieve shaker which produces a thoroughness of sieving.

4. Drying Apparatus - Any apparatus capable of maintaining a uniform temperature of 230 ± 40 EF.

5. Sample Splitter - Any apparatus which will divide the sample into representative portions. A riffle splitter is preferred.

929.03 Test Sample

Dry the field sample sufficiently so that a clean separation of fine and coarse material will be obtained during sieving operation. Sieve the sample over a No. 4 sieve. Reduce the material retained on the No. 4 sieve by means of a sample splitter to a representative test sample weighing approximately 500 g.

For material site investigation, the field sample is crushed and processed in the laboratory. In this case, a test sample weighing approximately 500 g is batched down to the No. 4 sieve to meet the design gradation.

929.04 Test Procedure

1. Wash and dry the test sample.

2. Place the sample on a clean, flat surface.

3. Spread the sample thinly, and separate out all rounded aggregate particles. Rounded particles are those particles round or curving in shape whose original edges and corners have smoothed off to rather broad curves and whose original faces are almost completely removed by abrasion (although some comparatively flat surfaces may be present). The original shape is still readily apparent. A flat particle may be well rounded, where a nearly spherical particle may have sharp edges and be angular.

4. Weigh the rounded particles and the non-rounded particles separately.

929.05 Calculations

Calculate the percent of rounded aggregate particles as follows:

$$R = \left(\frac{W1}{W1 + W2} \right) 100 \quad \textbf{(1)}$$

(1) Rounded Aggregate

where R = the percent of rounded aggregate particles in tenths.

W1 = the weight of rounded particles in tenths of a gram.

W2 = the weight of non-rounded particles in tenths of a gram.